

## Business Transformation: It's About the Customer Not the Network

An Executive Brief



*"Partnering with clients to create innovative growth strategies"*

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## EXECUTIVE SUMMARY

Communications Service Providers (CSPs) have traditionally focused on managing fault and performance problems with regard to their networks and less with regard to their customers. Enabled by major technological advances, competitive forces are now bringing more choices, reduced pricing, and increased flexibility to all customer segments. Incumbent CSPs are realizing what competitors already know: the network—wireline/wireless, circuit-switched/IP—is not a source of competitive differentiation anymore and it is not the most important focus for long-term corporate success. The services riding these networks, often supplied through a combination of sources, are the real differentiators and revenue generators. Through improved capabilities and partnerships, CSPs are getting better at delivering what customers want including web access, media & entertainment content, business applications, low-cost voice, and yet-to-be-named quality of life improvements.

Assuring the availability of such services and the quality of those services for every customer is something CSPs recognize as the key to profitability and long-term sustainability. Hence, their business focus is changing to reflect more attention on customer satisfaction. Customer Experience Management (CEM) is the discipline for bringing together processes, systems, and customer usage data to ensure that engagements between the customer and the service result in a positive experience.

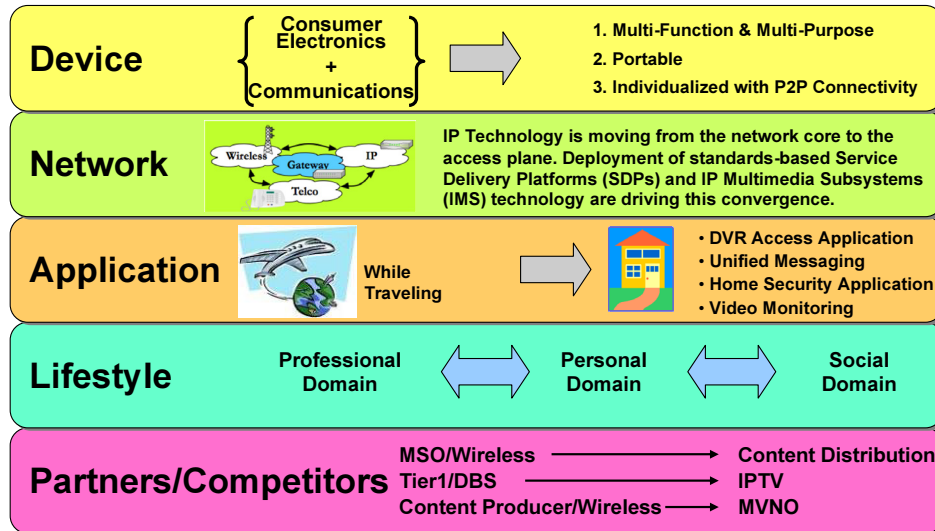
In this report we explain the market factors driving CSP business transformation and the need for new operations functions such as CEM. We define CEM within the context of today's business environment and show why CEM adds significant value to internal operations in understanding and adjusting to new customer assurance requirements. We provide a perspective on the long-term effects changing customer needs and technology evolution are having on the way CSPs view their customer base. We also explain how IBM's CEM solution offering addresses these requirements and how data management plays a critical role in successful CEM projects.

## CONVERGENCE IS DRIVING BUSINESS TRANSFORMATION

### Market Drivers Pushing Increased Customer Awareness

The communications industry is facing unprecedented levels of change; rivaling the rapid fiber rollout and dot.com enthusiasm from just a few years ago. Shown in Figure 1 below are some of the most significant levels of convergence, which compounded together, are causing CSPs to transform their business strategies into a keener focus on the customer.

Figure 1: Communications Industry Convergence



Source: Stratecast

The most important market drivers influencing CSP transformation today include the following:

- **Mobile Device Evolution** – The mobile handset and laptop PC markets are driving service integration between carriers and traditional network technologies. For example, fixed-mobile convergence (FMC) is gaining momentum as new customer “interface devices” enable seamless roaming across both IP and cellular networks. This often results in improved customer perception of mobile service quality where cellular network coverage is less than optimal. These devices are also ushering in new capabilities for the delivery of services and content, which generally involve complex interactions between network capacity and content delivery.
- **Network Technology Convergence** – Although wireless and wireline convergence is capturing headline attention, new IP-based technologies are changing the competitive landscape. For example, the voice calling market was dramatically altered when IP-enabled network capabilities (VoIP) were installed by competitive entrants and incumbents alike. This forever changed the way services, such as long distance, were packaged and offered. As the industry-wide “IP over fiber” network infrastructure initiatives continue to take shape, several new service capabilities are emerging—many of which were never thought practical in the past.
- **Customer Churn from Mobile Data Service Problems** – A large percentage of mobile data customers annually churn as a result of reported and usually unresolved service problems. For some carriers this can exceed 10% of their total mobile customer base, often involving many of

their most lucrative customers. While many CSPs have done much to improve this problem, it remains a major concern given the high customer acquisition costs regularly experienced through mobile handset subsidies and contract givebacks.

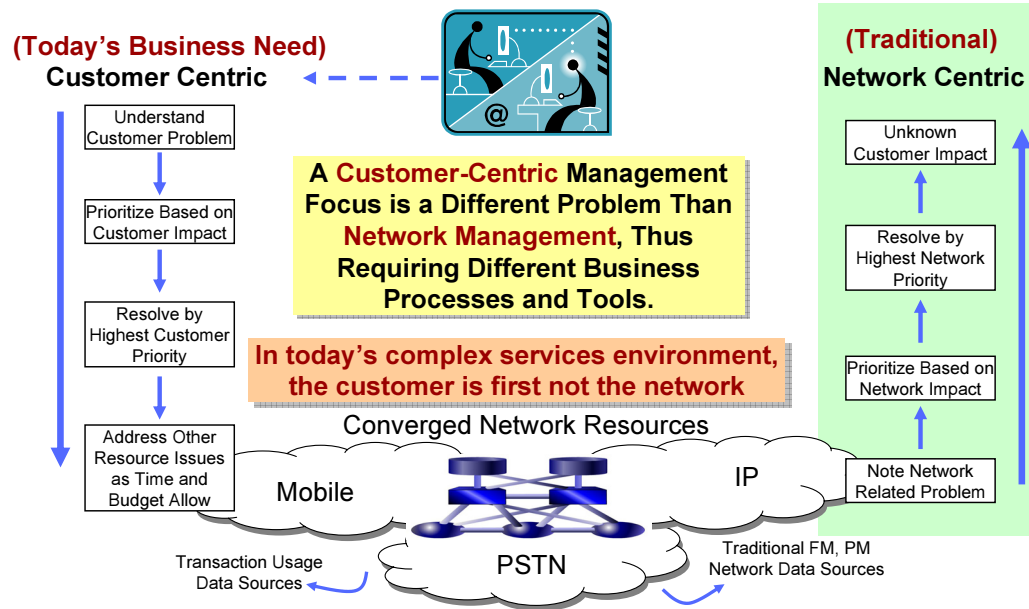
- **Rising Calls to Customer Service Support** – Mobile call center support volumes are rapidly increasing as the number of data service subscriptions and smartphones are placed into operation. The latest feedback from the CSP community shows data problems taking nearly three times longer than voice services for resolution. While some handsets are better than others in addressing customer requirements and in minimizing the need for technical proficiency, customer demand for billing support continues. Demand for answering service usability questions, especially those involving smartphones, is also growing exponentially.
- **Customer Lifestyle Offerings** – It is estimated that by 2010 worldwide ownership of mobile phones with video/TV capabilities will be two times greater than the number of regular TVs in operation. With such an overwhelming number of mobile TV units globally and an increasing number of customers with triple screen (mobile, TV, computer) access, integrated presence/location-based partner advertising will motivate consumers to engage in video services differently than they do today. In a similar manner, other content-based service combinations involving business, social, and leisure settings will provide ways to improve customer lifestyles. These will all have the desired net effect of increasing network usage while at the same time generating more demand for customer support.
- **Competitive Non-Traditional Market Players** – Organizations with significant market presence in other industries, with understanding of the power of precision marketing, and in realizing the revenue potential from advertising, view the converging communications services market as a major expansion opportunity. Some already have the means for initiating a variety of communications service packages that rival anything provided by traditional operators. Although early market entrants may be challenged in gaining critical market traction, continued evolution of network and customer mobile handset technologies are hastening the ability of these players to provide compelling competitive alternatives.

**It is no longer just about the network. IP-based technologies are redefining the opportunities for customer choice and flexibility—the basic ingredients for long-term customer satisfaction. CSPs are recognizing focus on the customer is as important today for business success as network service quality was a few short years ago.**

### **Customer-Centric Business Management**

CSP transformation to a customer-centric business strategy requires a strong understanding of the customer experience. With this understanding comes a need for change to existing business processes, systems and even work groups. As shown in Figure 2 below for example, focusing on the customer first and then the components defining the service, network-related issues that do not have an immediate customer impact can be categorized with other lower-priority problems and addressed after all customer-affecting issues are resolved.

Figure 2 – Customer Centric Not Network Centric Business Management



Source: Stratecast

Critical to the success of such a change in business strategy is collecting customer experience data and successfully enriching that data with customer information pertaining to the layers of users within a CSP's customer account structure.

## CUSTOMER EXPERIENCE MANAGEMENT

### What is CEM?

CEM is a term borrowed mostly from other industries and partially from the customer-facing side of the communications business. While specific uses of CEM vary by department, the basis for CEM and a focus on CEM principles is the bridging together of processes and data to efficiently manage a customer's usage of the products and/or services offered by all involved suppliers, e.g. CSPs and their content partners. In its broadest sense, CEM is the practice of collecting customer usage data from all practical sources (network devices, content servers, and management databases) to be used by both business and technical departments in accomplishing two specific goals:

1. **Establishing an Internal View of the Customer Service Experience** – Allows proactive improvement of customer service based on how the resources defining a service are used. This includes for example, improving the trouble reporting process by coupling customer transaction data with network reported events. It also includes identifying which mobile handsets may not be compatible with certain downloaded content or how many times a user fails to achieve successful launch of a data service such as email or web access. CEM involves monitoring the customer's use of their purchased services and analyzing this data to note trends, preferences, and usage problems.
2. **Establishing an External View of the Customer Experience** – Supplies customers with a means for understanding how use of their service subscription measures up to the definition prescribed by a business contract. Though providing an external view of service usage data

offers customers an effective understanding of their service experience, due to the limited use of such data for CEM related business activities to date, most CSPs first develop internally-oriented CEM business practices and then expand a limited subset of such capabilities to their key customers.

### **Why CEM Is Important Today?**

Work teams within the same organization contribute to different aspects of CEM. For example, the business management portion of most CSPs today perform “customer analysis” by using churn information from billing records, customer support systems, trouble systems, and related “customer touch” systems/processes as a way of managing and improving the attractiveness of their services. While important, it only supplies a surface-level view that is typically done after a customer leaves for a “better deal” or on the promise of “better service” elsewhere. **This type of analysis often has little effect if established business processes involve nothing in real-time to help customers overcome their service-related problems before they leave.**

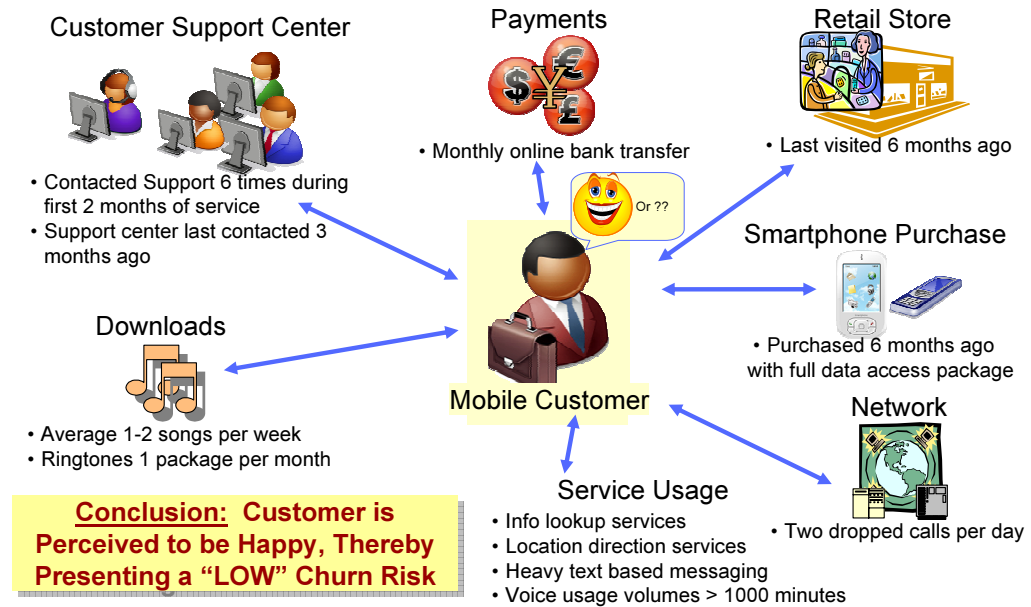
To illustrate the important role CEM can provide in understanding the customer experience and in helping the customer management process, Figures 3 and 4 define a hypothetical example of the barometer that supposedly defines a good customer experience in association with the actual attitude of the customer. Figure 3 outlines the type of “traditional” analysis business teams can do in determining the likelihood of a customer leaving for another carrier, or if they left, the likely reason for the customer’s departure. Data is reviewed from multiple sources including:

- **CRM Data** – CRM systems can show customer-specific information pertaining to equipment purchases, visits to a retail store, call-in’s to the service support center, and frequency with which the customer pays their bills.
- **Billing Data** – Network switch information collected and correlated by customer initially for billing purposes, can show how often the customer attempted voice calls, how many were successfully completed, how many were abnormally terminated (dropped call), and what level of total voice minutes were used.
- **Network Database Usage Data** – Network database information can define how much web-based content was downloaded, the frequency with which downloads occurred, and the number of text/picture messages that were either sent or received.

**Analysis of the combined information from these sources, if rigorously completed and continuously monitored, may show some indications of customer concern. However, occasional batch-based analysis (if done at all) would indicate the customer was generally happy and would thus be classified as a “low churn risk.”**



**Figure 3 – Understanding the Customer Experience (Today's Typical Approach)**



Source: Stratecast

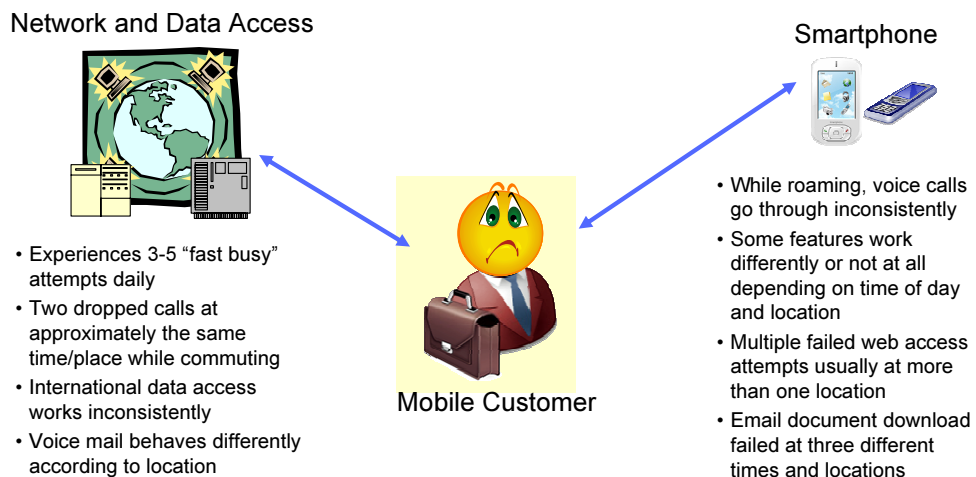
Obtaining a true understanding of what the customer experiences with their service bundle requires correlation of usage transactions captured from the customer handset and from the signaling message traffic that guides the operation and delivery of all services involving today's wireless and wireline networks. These signaling transactions are essential for managing every customer activity including switching on a handset, acknowledging the successful download of entertainment content (music, video or ringtones), understanding handset compatibility issues, and in directing the most complex multi-partner service definitions.

When measurement data concerning how customers use their services is added to the churn analysis process previously described, a different picture is likely to emerge and different conclusions are likely to be realized as noted in Figure 4 below. The additional CEM data measurements include:

- **Signaling Network Call Path Data** – Provides voice call setup information concerning call attempts that successfully completed/failed, notes abnormal call terminations by identifying what network nodes were involved, recognizes the voicemail resources that were accessed, and shows what (if any) call control peripherals assisted in subscriber usage validation. Data is collected for every user placing or attempting a voice call over any mobile or fixed line network.
- **Signaling Network Session Data** – Notes success or failure of each data access session, web access attempt/failure, and identifies which network database blocked or allowed various data service access attempts (email or content downloads). If handset configuration problems are causing service access issues, each access attempt can be notably traced to the network node involved, and upon further validation of correct network operability, user device problems can be noted with specificity to the mobile device type and firmware assignment. This data is collected for every user accessing or attempting to setup a data session. It is independent of data that may also be collected directly from a customer's mobile device.

- **Mobile Device Data** – Delivers on-demand information as necessary about the customer service assignment, access attempts/completions, usage of device-based functions that interface with the network, and related capabilities. Handset information would generally be used to support CSP-initiated on-demand trouble shooting needs. Due to limits on handset battery life and network capacity issues, continuous handset data readouts to a network-based system are generally not feasible. This method continues to be an ongoing area of research by both CSPs offering mobile services and the industry vendor community.

**Figure 4 – Understanding the Customer Experience (Additional Measurements)**



**Conclusion: Customer is SERIOUSLY planning to switch to a new CSP believed to have better service**

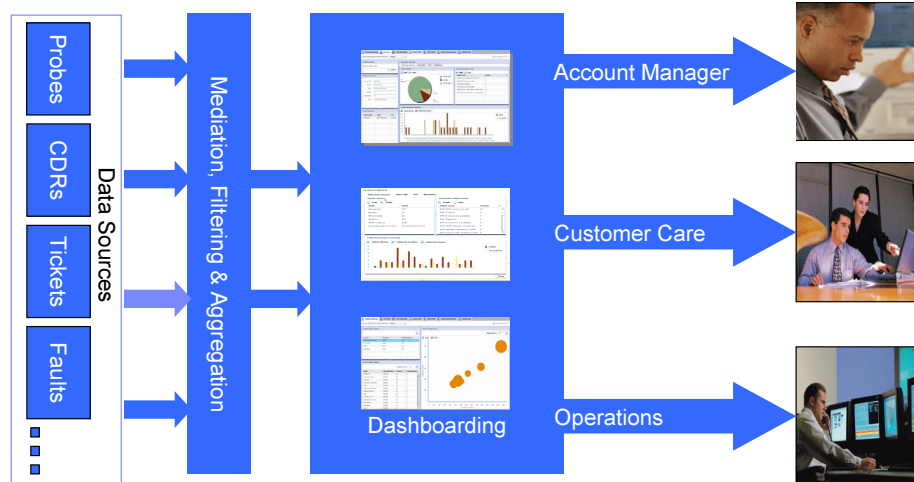
*Source: Stratecast*

Individual users have different handsets, use different services, access these services from different locations, and connect over different paths through the network. They each have individual experiences that cannot be interpreted from aggregate network monitoring metrics and reports. **The signaling network data from both voice call and data session management defined in Figure 4 above, provides enough added insight to conclude there are significant service issues with this customer and that additional steps should be taken to keep this customer from leaving.**

### **IBM’s CEM Solution Approach**

The customer experience management domain is still in an infantile state as it pertains to the communications industry. Some suppliers, however, now understand the complexities involved with bringing massive amounts of CEM network measurement data together with the right types of enrichment detail to deliver understanding about a customer’s service experience. The most critical suppliers for this rapidly evolving hybrid OSS/BSS functional area are limited. However, IBM Tivoli is one supplier presently offering a CEM solution as shown in Figure 5 below.

Figure 5 – IBM Tivoli Customer Experience Management Solution



Source: IBM

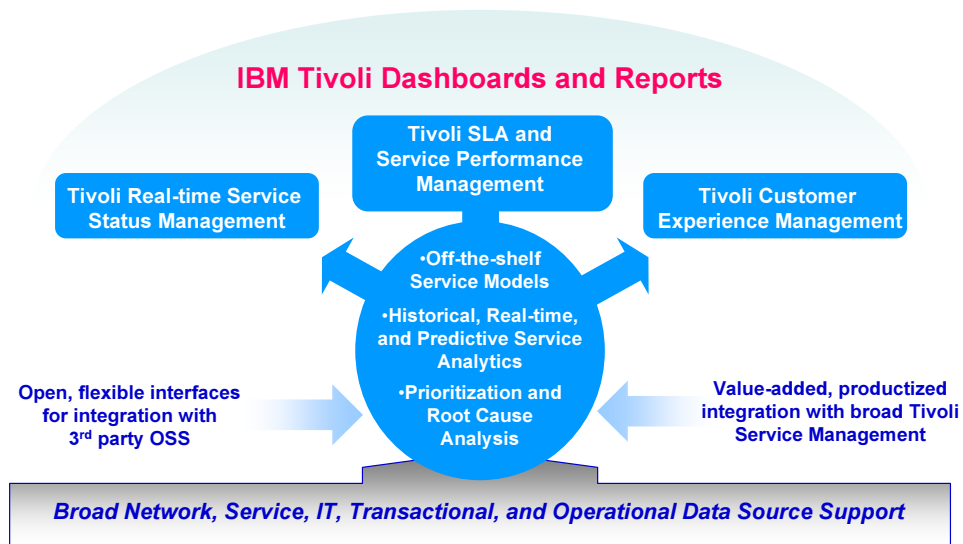
The IBM Tivoli Customer Experience Management solution aggregates and correlates data from multiple sources, including network signaling data feeds, to provide a variety of analysis and reporting capabilities that can be used by a wide variety of internal CSP business teams. Though CEM is designed to operate stand-alone, it is also engineered as part of IBM's larger service quality management offering. Shown in Figure 6 below, the recently released Tivoli Netcool Service Quality Management solution provides three key functional components. These are:

- IBM Tivoli Real-Time Service Status Monitoring
- IBM Tivoli SLA and Service Performance Management
- IBM Tivoli Customer Experience Management.

Customer experience management is a growing area of opportunity for suppliers understanding the complexities of data management. Today, the business processes and systems within nearly all mobile and fixed line operators focus first on network-based needs rather than the customer. Changing business strategy to support the customer first sounds “right” and is now accepted universally across the industry, however, considerable time and effort will be needed to retool the business processes and people at the major CSPs to work in this manner.

**Stratecast believes a successful CEM strategy will take far more than a good software solution. It requires both CSPs and their suppliers to adopt a data-centric approach to customer management. IBM is one of only a few suppliers we see possessing enough solution capability and services expertise to address the end-to-end needs of CEM transformation.**

Figure 6 – IBM Tivoli Netcool Service Quality Management Solution



Source: IBM

## CSP BUSINESS TRANSFORMATION – ACHIEVING CUSTOMER FOCUS

### Measuring the Customer Experience

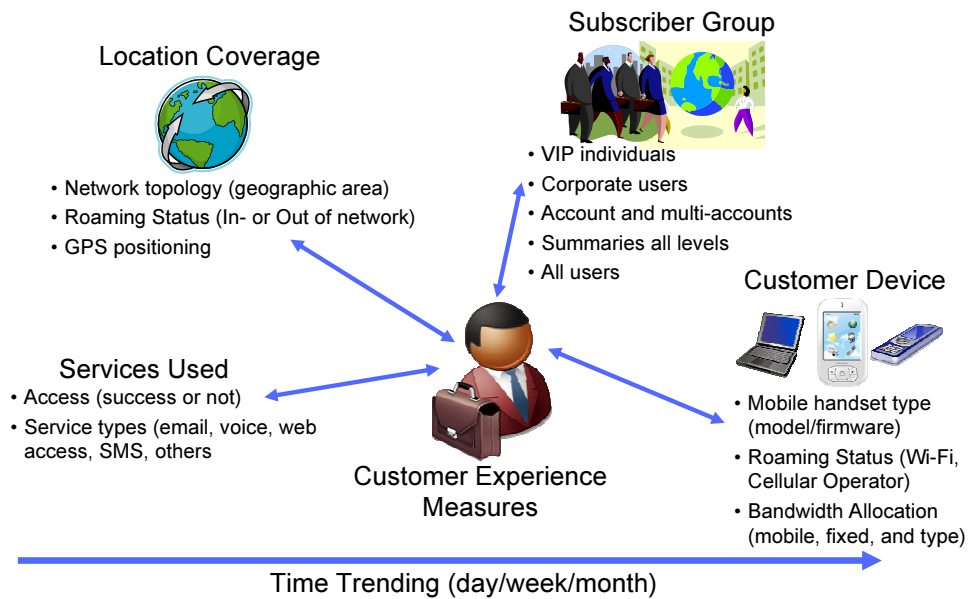
For mobile customers, CEM involves direct knowledge of what the customer experienced on a voice call, SMS or MMS message, video download, email, or even web session. Did the call complete? Was the text message received in a reasonable timeframe? What level of video session quality was achieved? Did the customer send and receive email messages successfully? Achieving this knowledge requires data from call signaling or data session analysis, even deep packet inspection (DPI) capabilities. It is needed for a variety of reasons, although helping to pinpoint the cause of service problems is a primary purpose. Measurement of the customer experience:

- Allows CSPs to note by customer if a subscribed service worked successfully
- Will detect configuration problems with a customer's mobile handset. This issue has been noted by numerous CSPs as the most significant source of technically-related customer complaints
- Shows when composite data traffic between network confluence points trend beyond acceptable limits, potentially indicating abnormal usage conditions
- Provides knowledge about how customers engage with different service offerings
- Delivers a way for CSPs to proactively market to specific customer needs, especially if analytics are applied from a business development perspective
- Helps in planning for network expansion by showing customer usage at an individual or composite service level.

### Data Relationships

CEM, to be effective, uses data measurements involving a number of parameters as shown in Figure 7 below. Each of these can be analyzed and reported individually or they can be grouped to satisfy specific trouble-shooting, planning or marketing needs.

Figure 7 – Customer Experience Data Relationships



Source: Stratecast, IBM

All CEM data is time based. Measurements today may not look the same tomorrow or a week from now due to the dynamic nature of customer traffic volumes, especially within a mobile network. However, trending relationships between various measurement parameters are important as they are a good indicator of issues that may not immediately impact a customer's service experience today, but if left unchecked, will have a major impact in the not-to-distant future. Examples of customer experience data relationships that satisfy a variety of business needs are:

- **Content Downloads by Subscriber Group and Handset Type** – Customers regularly download ringtones, games and other forms of entertainment. At times there may be incompatibilities between a mobile handset and the downloaded content. Details can be summarized for a group of customers or for a geographic area across a specific period of time. Data can be presented by handset type and in some cases it will include the software/firmware version used by a mobile device.
- **Roaming Customers By Geographic Area** – Summary of roaming customers (subscribers that are not directly contracted with the network owner) by geography is important to understand ways to improve service coverage through increased network capacity (network planning) or to compare with current billing data generation (revenue assurance). Trending this information based on hourly and daily fluctuations in customer traffic is important for identifying potential bottlenecks, for example, at key places in a CSP network.
- **Service Usage by Corporate Hierarchy and Handset Type** – Summarizing service usage by corporate hierarchy (different work groups inside the same company) for each service provided to major customers is strategic for gaining insight into how to deliver the right package of services to meet specific business needs. Additionally, weekly or monthly trending is important for helping corporate accounts know when to make seasonal adjustments.
- **Customer Access Usage by Network Topology** – Network capacity is often designed and built based on demographic measures obtained from multiple sources. Summarizing customer service usage or network access attempts by geographic areas such as mobile cell sites are very

valuable for confirming initial demographic assumptions and/or in making adjustments to existing network deployments. It can also confirm where new network capacity should be placed.

A wide array of data combinations serve different business purposes within the service problem domain, customer support sector, services planning area (new service combinations e.g. marketing), network resource planning group (improving capacity and service availability), and revenue assurance department at any large mobile operator. Customer experience measurements have been traditionally used to support the network trouble shooting and service quality processes. Work groups from marketing, customer care and resource planning are still largely unaware of the potential use of such information, especially if collected and delivered on a near real-time basis.

**Stratecast believes the time is now for taking transaction information from different data sources and applying it to better management of the customer service experience. The examples previously listed are just a few suggestions, which will vary according to the unique objectives of each organization engaging in a “customer first” business strategy. After deciding to go forward with such an approach, the real challenge for all CSPs resides in the collection of transaction data, aggregating/enriching it to the right levels of usability, and modifying internal processes to reflect a true customer-centric business.**

## Stratecast The Last Word

Business Transformation is about strategically changing operational focus from network technology to the customer. It involves adapting to changing market conditions caused from convergence of network technologies, major advancements in mobile devices, the rise of competitive forces, and the need to deliver services involving a variety of suppliers. Transformation requires a significant redirection of the way business has been done so that better understanding of the customer experience is provided to the work teams making critical and strategic business decisions.

Customer Experience Management (CEM), as applied to the converging communications marketplace, brings business functions and transactional data together in helping CSPs understand their customers. CEM delivers usage intelligence to the forefront of all business management and network operations processes. It involves summarizing and enriching measurement data with enough customer-specific detail to deliver an individual or group summary view of what customers receive when they use their services. CEM is designed to preserve and enhance the customer relationship by answering tough questions such as:

- Can an email be sent and received from all mobile devices?
- Was a mobile customer's attempt to access the network successful or not?
- Did the requested media/entertainment download to a mobile device correctly and was it compatible?
- Which mobile devices, if any, experience repeated content compatibility problems?
- Are the right business relationships in place to meet the changing needs of a widely diverse demographic market?

A short time ago service offerings were entirely delivered from a CSP's network. Monitoring for problems relating to equipment failures or exceeding design traffic loads were the only parameters for defining acceptable service quality. Achieving the right level of success for addressing customer experience issues today, however, requires insight from signaling and packet management data. **Without customer experience measures, transforming to a customer-centric way of doing business will remain a desired objective rather than an achievable reality.**

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